

Abstract for NI consideration

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Overview of Academic Programs, Strategic Priorities in Nuclear Engineering, NTC and GNEII

Khalifa University was established on 13 February 2007 by His Highness Sheikh Khalifa bin Zayed Al Nahyan, the President of the UAE and born of the vision of His Highness Sheikh Mohammed Bin Zayed Al Nahyan, Crown Prince of Abu Dhabi, Chairman of the Board of Trustees. The University serves Abu Dhabi, UAE Society, the region and the world by providing an environment of creative enquiry within which critical thinking, human values, technical competence, practical skills, business acumen and a capability for lifetime learning are cultivated and sustained. It sets itself high standards in providing a caring, rewarding and enriching environment for all its students and staff and it ensures its graduates, on entering the workplace, form a superlative cadre of engineers, technologists and applied scientists, capable of making major contributions to the current and future sectors of UAE industry and society as leaders and innovators. In so doing, Khalifa University has established a number of engineering degree programs that contribute to the UAE 2013 Economic Plan. ABET accreditation of all but the most recently introduced programs was granted in 2015.

The Nuclear Engineering Academic Program was launched in September 2010 with an MSc degree in Nuclear Engineering. In 2012 a Nuclear Engineering Minor was introduced into the BSc degree in Mechanical Engineering and this Minor was extended to the BSc in Electrical Engineering – Power Concentration in 2014. A PhD in Engineering was also launched in 2012 with six engineering concentrations, including Nuclear Engineering. These programs have been developed to support the UAE's nuclear power program, launched in December 2009 with the acquisition of four APR 1400 MW nuclear power reactors from the Republic of Korea. These reactors are planned to go operational from 2020. In providing these programs, Khalifa University will support the key nuclear stakeholders – Emirates Nuclear Energy Corporation (ENEC) and the Federal Authority for Nuclear Regulation (FANR). In all programs, education is underpinned by research directed to meeting the needs of the stakeholders.

Our research focus is directed through the activities of the Nuclear Technology Center (NTC). The NTC's mission is to conduct research in the main thematic areas of nuclear technology necessary to provide a risk informed decision basis for the safe operation of the nuclear power plants, while estimating the consequences should faults occur. Our research in the main thematic areas of: **Theme-1: Nuclear Safety**

and Systems, Theme-2: Nuclear Materials and Chemistry and Theme-3: Radiation Safety in the Environment; will provide data for informed decision while innovation in methodology and practices will aim to minimize risks in operation of nuclear power plants. The NTC aims are enhanced by support from a number of reputable global institutions, including Imperial College, London; Strathclyde University ANRC, Scotland; NAMRC, Sheffield; University of Manchester, MIT, Boston; Sandia National Laboratories, New Mexico; r.e.m., Munich; IRSN, France and KAIST, Daejeon.

GNEII is a Gulf/Middle East regional human resource development capability, hosted at Khalifa University, Abu Dhabi, UAE. It is a strategic partnership between the UAE (Khalifa University, CICPA, ENEC, FANR) and the USA (SNL, NSSPI, DOE/NNSA and DOS/PNS) stakeholders. As an educational and research entity, GNEII delivers beyond a traditional training course and is an acknowledged center of excellence in '3S' and emergent nuclear energy infrastructure knowledge. Established in 2011, GNEII's Mission is to develop a responsible nuclear energy culture and institutionalize key safety, safeguards, security ('3S') and nonproliferation norms in the future decision-makers of Gulf-region nuclear energy programs through professional development. Its vision is to provide the Gulf and surrounding region, with a continual source of indigenous nuclear energy professionals with whom the global community can effectively collaborate to achieve broader nuclear energy security, safeguards and safety priorities. To date GNEII has graduated 78 Fellows, from 5 regional Countries, through its intensive 14 week Fundamentals Course. The expanding Capstone projects within the GNEII Fundamental course provide the bedrock for the expanding research pillar within GNEII.